

I CLAIM:

- 1 1. A dual action canopy release buckle for releasably holding a
2 parachute harness securement strap, said buckle having a frame with a
3 forward end and a rearward end supporting a latch which may be pivoted
4 between a locked-counterclockwise position and a released-clockwise
5 position and being biased in a released-clockwise position and said latch
6 being held in a locked-counterclockwise position by contact with a latch
7 holding ledge supported by an actuating lever, said actuating lever having
8 a distal end and a pivot end and said actuating lever being pivotable
9 between a latch holding-clockwise position and a latch releasing-
10 counterclockwise position and said actuating lever being biased toward a
11 latch holding-clockwise position, wherein the improvement comprises:
12 a lever arm pivotally held on the distal end of said actuating lever
13 and extending upwardly therefrom and said lever arm having a distal,
14 finger-contacting end and a pivot end, whereby when said distal, finger-
15 contacting end of said lever arm is moved rearwardly the lever arm
16 contacts a contacting end of said actuating lever and pulls the distal end
17 of said actuating lever so that the actuating lever rotates in a
18 counterclockwise direction to a latch releasing-counterclockwise position;
19 a forward facing surface of said lever arm; and

20 a contacting member secured to said frame and positioned so that
21 a rearward edge of said contacting member contacts said forward facing
22 surface of said lever arm at a point above said lever arm pivot pin
23 whereby when said distal, finger contacting end of said lever arm is
24 moved forwardly, said forward facing surface contacts said rearward edge
25 and lifts the lever arm pivot pin thereby rotating said actuating lever in a
26 counterclockwise direction to a latch releasing counterclockwise position
27 whereby a dual action lever results in releasing the latch when the distal,
28 finger contacting end of said lever arm is moved in a forward direction or a
29 rearward direction.

2. The dual action canopy release buckle of claim 1 wherein said lever arm pivot pin is secured to a downwardly extending arm at the distal end of said actuating lever.

3. The dual action canopy release buckle of claim 1 wherein the rearward motion of the distal, finger-contacting end of said lever arm is limited by contact with the contacting end of said actuating lever.

4. The dual action canopy release buckle of claim 1 wherein said actuating lever includes a cross arm portion which extends inwardly from a latch holding ledge arm portion of said actuating lever.

- 1 5. A dual action release buckle comprising:
2 a frame;
3 a latch moveably connected to the frame and adapted for releasably
4 holding a tang in the buckle, the latch having a locked position wherein the tang
5 is held, and an unlocked position wherein the tang is released;
6 an actuating member moveably connected to the frame and
7 mechanically cooperating with the latch, wherein in a first position, the actuating
8 member holds the latch in the locked position, and in a second position, the
9 actuating member releases the latch thereby allowing the latch to move to the
10 unlocked position;
11 a lever arm having a lever arm actuating end and a lever arm pivot end,
12 wherein the lever arm pivot end is pivotally coupled to the actuating member;
13 a contacting end of the actuating member residing proximal to the lever
14 arm;
15 a contacting member fixedly connected to the frame and residing proximal
16 to a side of the lever arm opposite the actuating member, and between the
17 actuating end and the distal end, and wherein:

18 motion of the lever arm actuating end in a first direction is directly coupled
19 to the actuating member through contact of the lever arm with the contacting end
20 of the actuating member, whereby the actuating member is movable from said
21 first position to said second position; and

22 motion of the lever arm actuating end in a second direction is inversely
23 coupled to the actuating member through the lever arm pivot end, wherein the
24 lever arm contacts and pivots about the contacting member, whereby the
25 actuating member is movable from said first position to said second position.

6. The buckle of Claim 5, wherein the contacting end is positioned to contact the lever arm between the lever arm actuating end and the lever arm pivot end.

7. The buckle of Claim 5, wherein the actuating member comprises an actuating lever pivotally coupled to the frame.

8. The buckle of Claim 7, wherein the actuating lever is pivotally coupled to the frame by an actuating lever pivot pin.

9. The buckle of Claim 5, wherein the actuating member comprises an activating slide slideably coupled to the frame.

10. The buckle of Claim 5, wherein the actuating member is biased into said first position.
11. The buckle of Claim 5, wherein said latch is biased into the unlocked position.
12. The buckle of Claim 5, wherein the actuating end of the lever arm includes a finger-contacting end adapted for manual manipulation.
13. The buckle of Claim 5, wherein the lever arm pivot end is pivotally coupled to the actuating lever by a lever arm pivot pin.
14. The buckle of Claim 5, wherein the latch is moveably connected to the frame and adapted for releasably holding a tang of a parachute harness securement strap in the buckle.
15. The buckle of Claim 5, wherein the actuating end of the lever arm required between approximately two pounds force to approximately fifteen pounds force to move the actuating member from the first position to the second position.

- 1 16. A dual action canopy release buckle comprising:
- 2 a frame;
- 3 a latch moveably connected to the frame and adapted for releasably
- 4 holding a tang of a parachute harness securement strap in the buckle, the latch
- 5 having a locked position wherein the tang is held, and an unlocked position
- 6 wherein the tang is released;
- 7 an actuating lever pivotally connected to the frame and mechanically
- 8 cooperating with the latch, wherein in a first position, the actuating lever holds
- 9 the latch in the locked position, and in a second position, the actuating lever
- 10 releases the latch thereby allowing the latch to move to the unlocked position;
- 11 a lever arm moveably connected to the frame and having a lever arm
- 12 actuating end and a lever arm pivot end, wherein the lever arm pivot end is
- 13 pivotally coupled to the actuating lever;
- 14 a contacting end of the actuating lever residing adjacent to a portion of the
- 15 lever arm between the lever arm pivot end and the lever arm actuating end; and
- 16 a contacting member fixedly connected to the frame and residing proximal
- 17 to a side of the lever arm opposite the actuating lever, and between the actuating
- 18 end and the pivot end, and wherein:
- 19 motion of the lever arm actuating end in a first direction is directly coupled
- 20 to the actuating lever through contact of the lever arm with the contacting end of

21 the actuating lever, whereby the actuating lever is movable from said first
22 position to said second position of said actuating lever; and

23 motion of the lever arm actuating end in a second direction is inversely
24 coupled to the actuating lever through the lever arm pivot end, wherein the lever
25 arm contacts the contacting end of actuating lever, whereby the lever arm and
26 the actuating lever act as a single unit and pivot in a counter clockwise direction,
27 whereby the actuating member is movable from said first position to said second
28 position of said actuating lever.

17. The buckle of Claim 16, wherein the actuating end of the lever arm
required between approximately two pounds force to approximately fifteen
pounds force to move the actuating member from the first position to the second
position.

18. The buckle of Claim 16, wherein the actuating lever is biased into said first
position.

19. The buckle of Claim 16, wherein the actuating end of the lever arm
includes a finger-contacting end adapted for manual manipulation.

20. The buckle of Claim 16, wherein said latch is biased into the unlocked position.